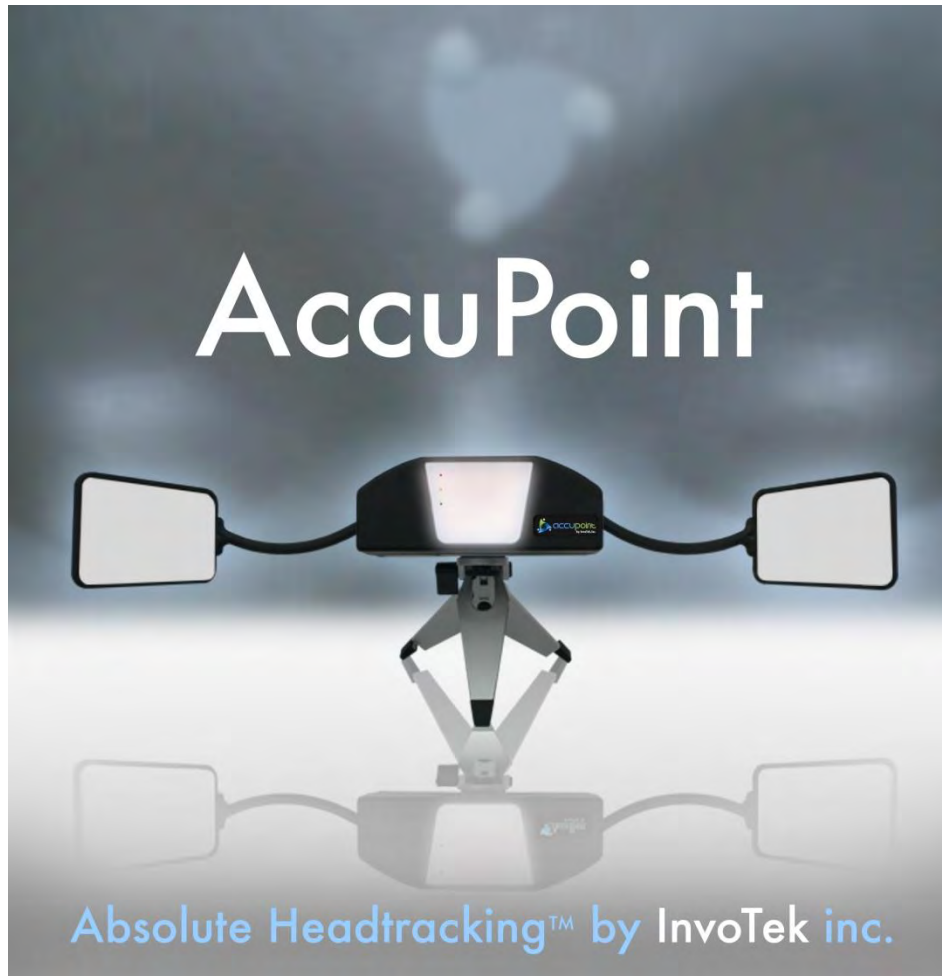


AccuPoint Talking Words User's Manual



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Version 1.8.2

AccuPointTW User's Manual

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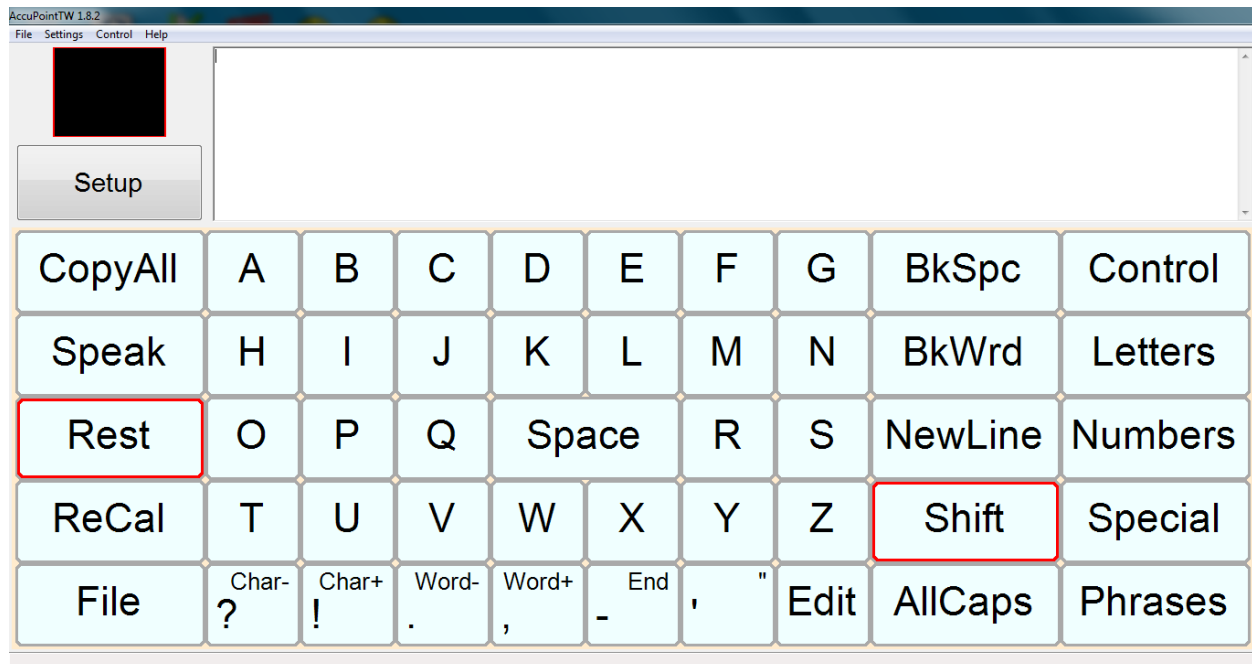
Starting AccuPointTW

Before you begin,

1. Ensure that the AccuPoint hardware is plugged into a USB port on your PC.
2. Attach the provided reflective dot cluster to your forehead or glasses.
3. Position the AccuPoint hardware so that you can see your dot cluster in the center mirror.
For best results, you should be about 30 inches from the AccuPoint hardware.

Start the AccuPointTW software by double-clicking on the AccuPointTW icon on the Desktop.

When the program loads, you will see an onscreen keyboard similar to this one:



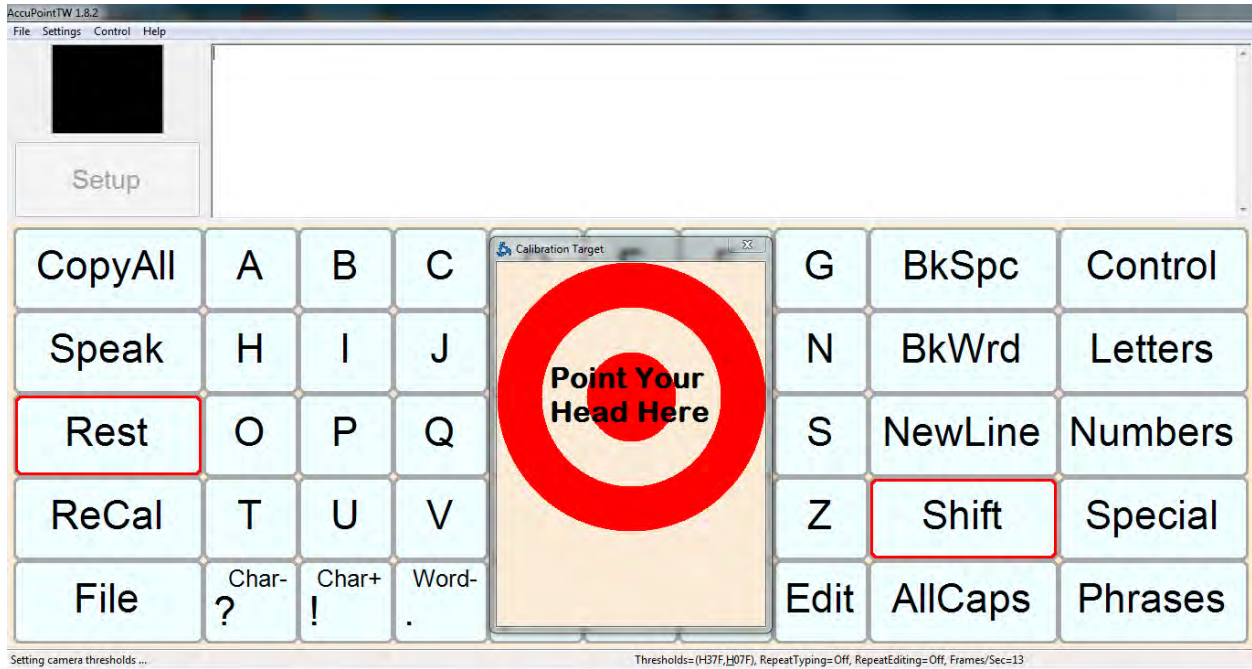
Within a second or two, AccuPointTW will check the InvoTek website for program updates. If a new version is available online, you will be notified immediately after the Calibration process is completed.

The onscreen keyboard is not active yet. The AccuPointTW system must be aligned or "calibrated" to the dot cluster on your head first.

Note: AccuPointTW, AccuClick, and AccuKeys can all be installed on the same system, but no two of them can be head-tracking at the same time. If AccuClick or AccuKeys is loaded when AccuPointTW's "Setup" button is clicked, AccuPointTW will detect the other program's presence and refuse to start head-tracking until the other program is closed.

Calibration

If you have previously configured AccuPointTW to AutoStart Tracking, it will display the Calibration Form, as shown below. If you have not previously configured AccuPointTW to AutoStart Tracking, you will need to click on the “Setup” button when you are ready to calibrate. The AccuPointTW software will display the Calibration Form, as shown below.



Note that the system is now watching the dot cluster and is moving the mouse pointer in sync with your head movements. For AccuPointTW to complete the alignment process, you must gaze at the center of the target and hold your head as still as possible in a comfortable position. Don't try to put the mouse pointer in the target –AccuPointTW will snap the mouse pointer to the center of the Calibration Form target repeatedly until it notes that your head is not moving, and then it will play the Calibration OK sound. When you are comfortable with the alignment settings and hear the Calibration OK sound, move the mouse pointer over the “Point here when done” button or stay still till the timer counts down to 0. The calibration Form will go away, and then you can use AccuPointTW's onscreen keyboard.

After AccuPointTW has completed its calibration process, as described above, try moving your head from side to side and up and down to see that you can position the mouse pointer to all four corners of the screen comfortably. If you can't reach some part of the computer screen with the mouse pointer, click on “Rest” and “ReCal” to restart the calibration process and let AccuPointTW adjust the mouse pointer again.

Using the AccuPointTW System

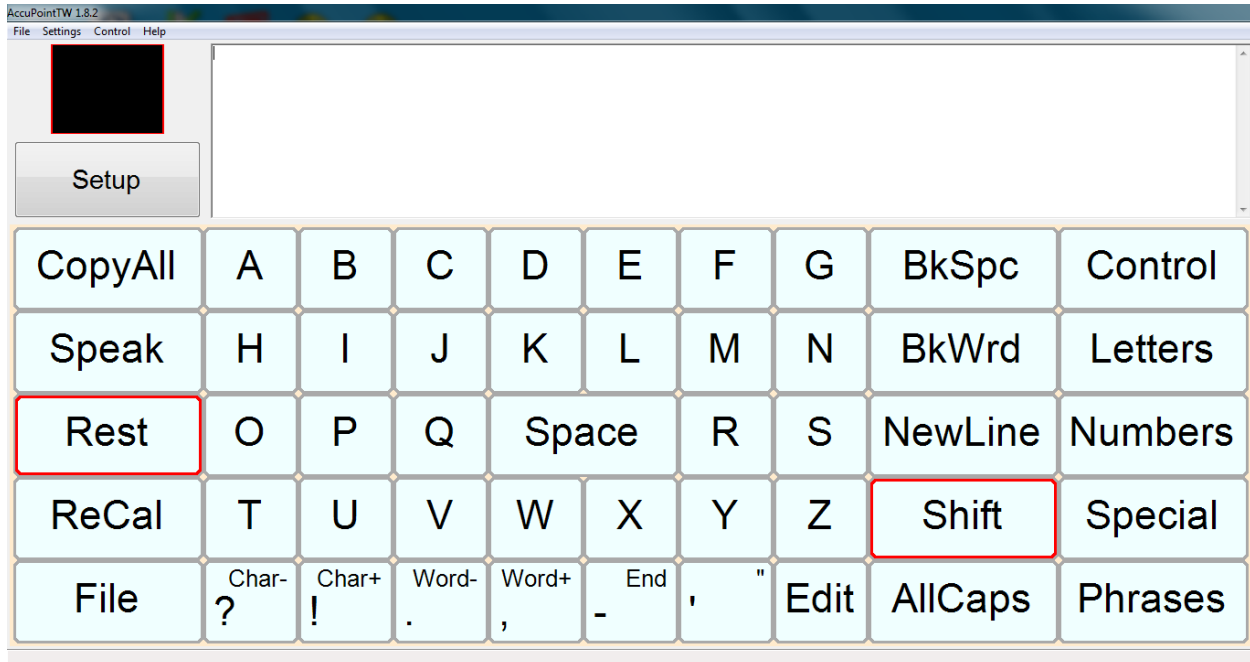
While using the AccuPointTW system, three colored lights (LED's) in the center mirror on the AccuPoint hardware will turn on and off to let you know how the system is working:

- Green –indicates that the system can see the dot cluster and is working correctly
- Yellow –indicates that the system is performing its internal startup functions
- Red –indicates that the system is on, but it cannot see the dot cluster and therefore cannot use your head movements to control the mouse pointer.

In addition, you will notice a black rectangle in the upper left corner of the AccuPointTW window, above the Setup button. This is called the Camera View Window, and it provides feedback to you as to what the AccuPointTW system sees. When the system is working properly, you will see two sets of three colored dots, each inside a rectangle of the same color. The blue rectangle and dots indicate what the right camera sees, and the red rectangle and dots indicate what the left camera sees. As you move your head, you'll see the rectangles and dots move around within the black window. If you move your head so that some of the dots disappear, then the AccuPointTW system cannot see your dot cluster, and the onscreen mouse pointer will stop moving until you move your head so that the dot cluster is again visible to the AccuPointTW system.

Typing

After the AccuPointTW system has completed its alignment process, you will be able to control the onscreen mouse pointer simply by moving your head. The onscreen keyboard is dwell-sensitive, i.e. you can click on any key (except Setup) simply by holding the mouse pointer over the selected key. As AccuPointTW detects that the mouse pointer is over a key, the key will be highlighted. If you continue to hold the mouse pointer over that key for the preset dwell time, the key will “click” just as if the key on the physical keyboard had been pressed.



Also when the AccuPointTW system completes its alignment process, two keys will be outlined in red. These keys are “sticky” or latching keys in that they toggle between two states, ON and OFF, as they are clicked. When they are in the ON state, the red outline is present, and when they are in the OFF state, the red outline is missing. ***The “Rest” key on the left side of the keyboard disables the entire keyboard when it is outlined in red, thus giving you a chance to rest without the AccuPointTW system doing any dwell-sensing and key-clicking while you gather your thoughts, talk to someone else, or just take a break from typing.*** When the “Rest” key is outlined in red, it is the only key that is active. To enable the remainder of the keyboard, you must click on “Rest” to disable it and enable the keyboard. The keys that are labeled with letters A-Z and punctuation will enter the respective characters into the text entry area at the top of the window when you click on them.

The keys along the right side of the keyboard do not enter text into the text entry area, but can be used to select different sets of keys to be displayed on the onscreen keyboard:

- Control – displays keys to Maximize the AccuPointTW window, return the window to its Normal size, Recalibrate the system with your head and dot cluster, and to Close the AccuPointTW program.
- Letters – displays the default “Letters” page containing alphabetic letters and selected special characters.
- Numbers – displays the “Numbers” page containing numeric digits 0-9, mathematical operation keys (but this is a typewriter keyboard, NOT a calculator), and related special characters.
- Special – displays the “Special” page containing a large selection of special characters that don’t fit on the Letters or Numbers pages.
- Phrases – displays the “Phrases” page containing a collection of pre-defined phrases that can be “spoken” simply by clicking on the respective keys.

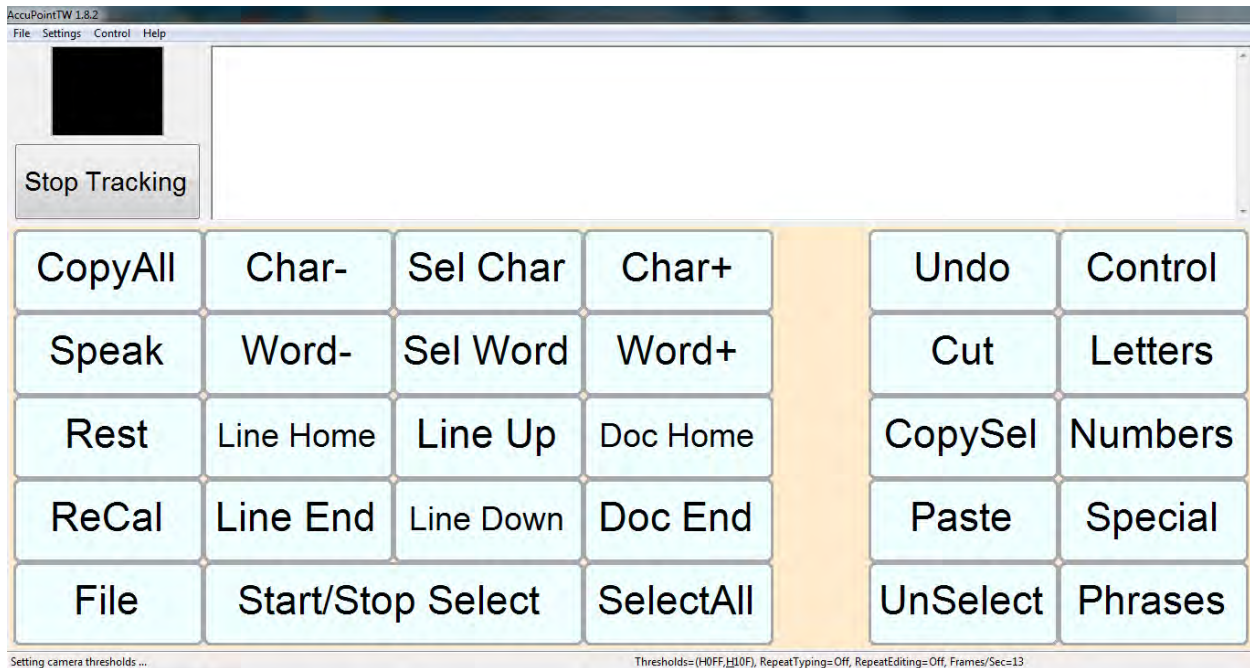
The keys immediately to the left of the control keys just described also perform some special functions, but they are all related to text entry. The BkSpc key erases the character to the left of the cursor in the text entry area and moves the pointer back one character position. The BkWrd key erases all characters from the text cursor back to the previous space character. The NewLine key inserts a line break and moves the pointer and all text that follows down to the next line. The Shift key will force the next key to be entered in upper case, but will revert back to lower case after a single character is entered. And finally, the AllCaps key will force all keys to be entered in upper case until the AllCaps key is clicked again to turn it off.

The keys along the left side of the keyboard also perform special functions as follows:

- Copy – Copy the entire contents of the text entry area to the system clipboard
- Speak – Read the entire contents of the text entry area aloud
- Rest – Put the entire keyboard into a “safe” mode in which “Rest” is the only key that can be clicked. Each time this key is clicked, it reverses its status.
- ReCal – Recalibrate the system with your head and dot cluster
- File – Save and open files from the default directory or clear the text in the text window.

Editing Text

The text entry pages (Letters, Numbers, and Special) each include a key labeled Edit and five keys on the bottom row with editing functions that are available when the Shift or AllCaps key is toggled ON. The five editing functions allow the user to move the cursor in the text box either left or right by single characters or by words in order to position the cursor for insertions or deletions. Use the BkSpc or BkWrd keys to remove text. When all insertions and deletions are completed, use the “End” function to move the text cursor back to the end of the document. If more extensive editing is required, click the “Edit” key to move to the Edit page of the onscreen keyboard, giving you access to extensive editing features including moving the text cursor by characters, words, or lines, selecting text, cutting text, copying and pasting text.



Phrases

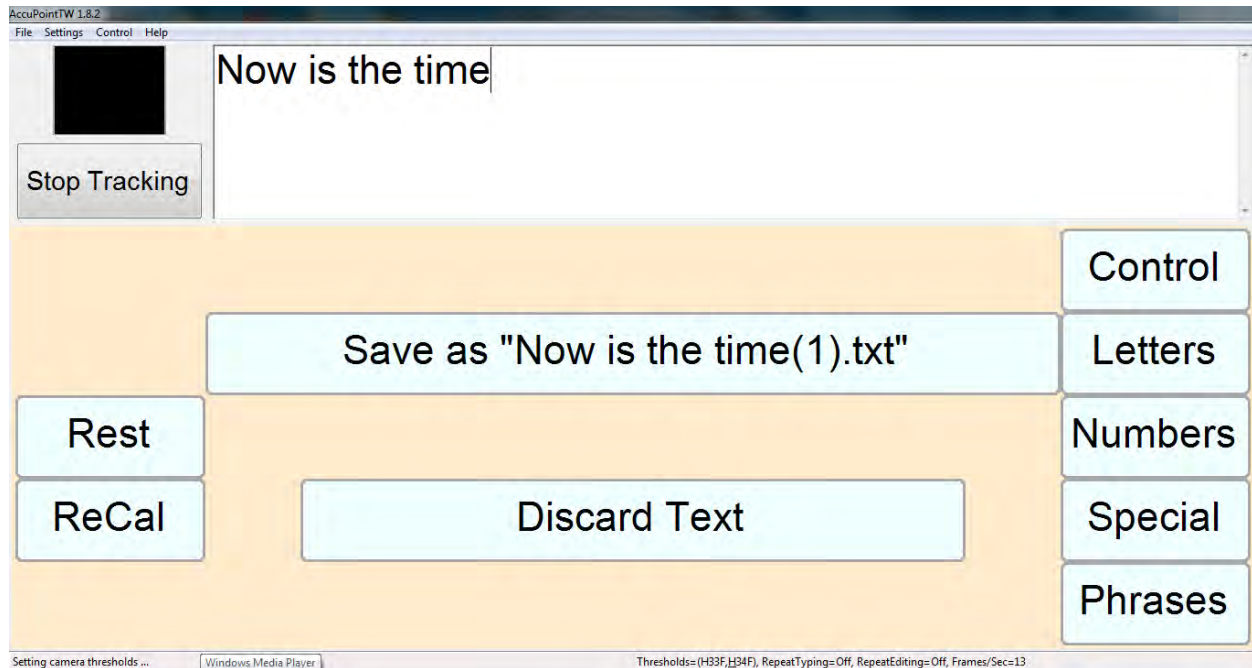
The Phrases page of the onscreen keyboard deserves special mention because the phrases on it can be edited. This page is designed to provide quick access to common phrases that can be spoken by AccuPointTW simply by clicking on the key, rather than having to spell out the message and then clicking on the Speak key. The messages are not written into the text window – they are only spoken. This is intended to give users who are unable to effectively use their natural speech a way to make comments while typing.



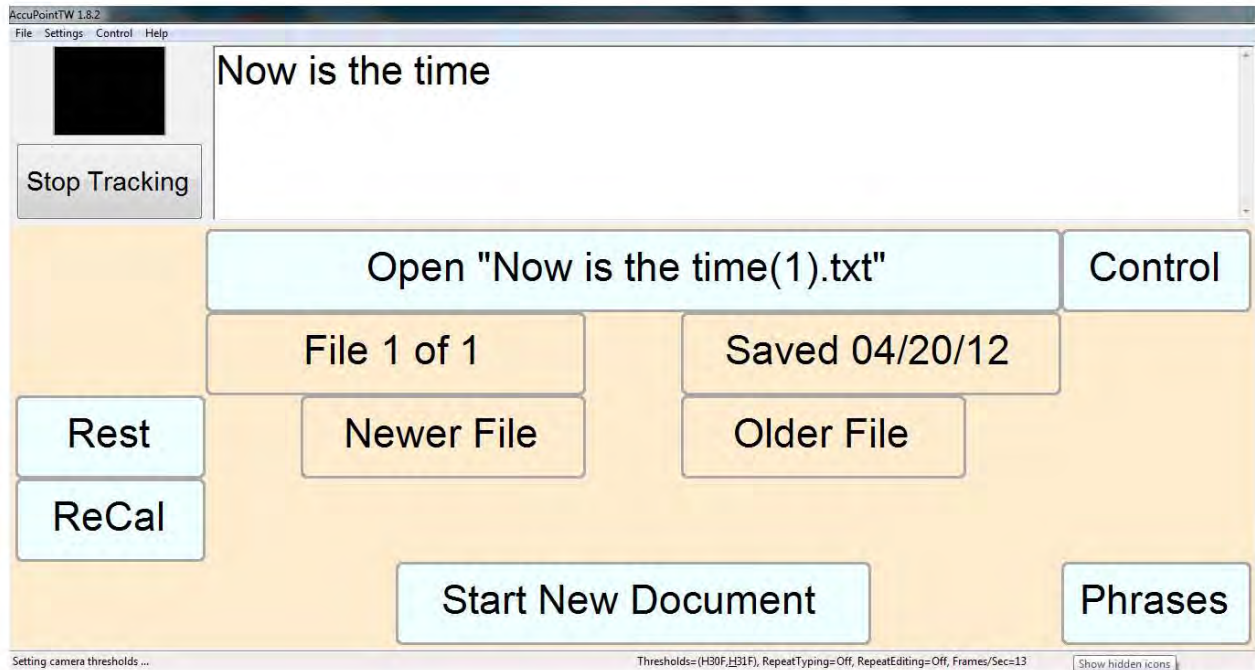
When AccuPointTW is installed, there are 20 pre-selected phrases assigned to the keys on this page. You can use these as installed, or you can change them to fit your preferences as follows. Note: This procedure must be done by a user with a standard mouse and a standard keyboard, as it requires the user to right-click on a key. When any phrase key is right-clicked, a Phrase Editing form will open and invite you to edit the displayed text for the selected key and/or the spoken text for that same key. Note that the two text fields need not be identical, and may need to be different in order to force the text-to-speech software to pronounce the phrase correctly. For instance, one of the default phrase keys is labeled “Trach”, meaning “tracheotomy”. The spoken text for this key is “Trake” since the default pronunciation of “Trach” is not even close to what is intended. Use the “Listen” button on this Phrase Editing form to verify that AccuPointTW will pronounce your phrase in the way that you expect. When you get the two text fields set as desired, click on the OK button to save your changes to the current onscreen keyboard. When you exit AccuPointTW, the changes you made to the Phrases will be automatically saved and will be reloaded the next time you start AccuPointTW.

Saving and Reloading Saved Text

AccuPointTW will give its users the option of saving all text that has been entered and edited into a file that will be kept in a special folder named "C:\Documents and Settings\USERNAME\ Application Data\InvoTek\AccuPointTW\1.8.2.0\Documents" in XP or "C:\Users\USERNAME\AppData\Roaming\InvoTek\AccuPointTW\1.8.2.0\Documents" in Vista or Win7. The text is saved in a simple text file, using the first few words from the text as the filename. Whenever you are ready to save your work, click on the "File" key in the lower left corner of the onscreen keyboard, and the File Save page will open as shown here. You can choose to save the text with the selected filename or to discard the text and clear the text area.



After you make one of these choices, AccuPointTW will let you open any saved text files by displaying a File Open page similar to the one on the right. Here you can browse all your saved text files according to the date each was saved using the “Newer File” and “Older File”. Click on the “Open” key to open one of them or click on the “Start New Document” key to clear the text area and start a new document. Once you have saved a file, AccuPointTW will give you the option to open it each time AccuPointTW starts.

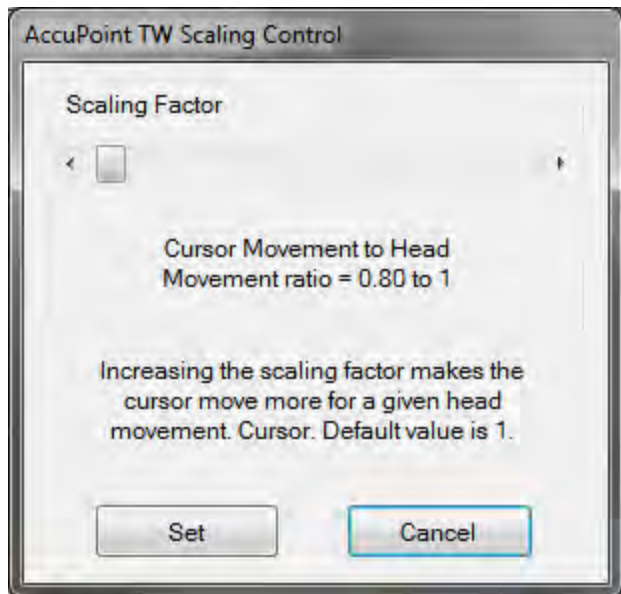


AccuPointTW Settings

AccuPointTW has a menu option titled “Settings”. Under this menu option are three menu items for setting various options relating to how AccuPointTW performs.

Scaling

Selecting the Scaling menu item opens a control for adjusting the amount of head movement required to move the mouse cursor across the screen. Selecting small numbers means you will have to move your head a lot to move the mouse pointer. Conversely, selecting a larger number means you will have to move your head only a small amount to move the mouse pointer. The default setting is 1.0, but it can be set to any value between 0.1 and 50.0. Values higher than 3.0 are for people who have very limited head movement. Values higher than 6.0 require a larger cluster of dots for accurate head tracking. Contact your distributor or InvoTek (AccuPoint@invotek.org or (479)-632-4166) for more information. You will probably need to experiment with this setting to find the value that works best for you.



The Scaling menu item is not accessible while AccuPointTW is actively tracking your head movements. You must click on the Stop Tracking button before this menu option will be active.

Filtering

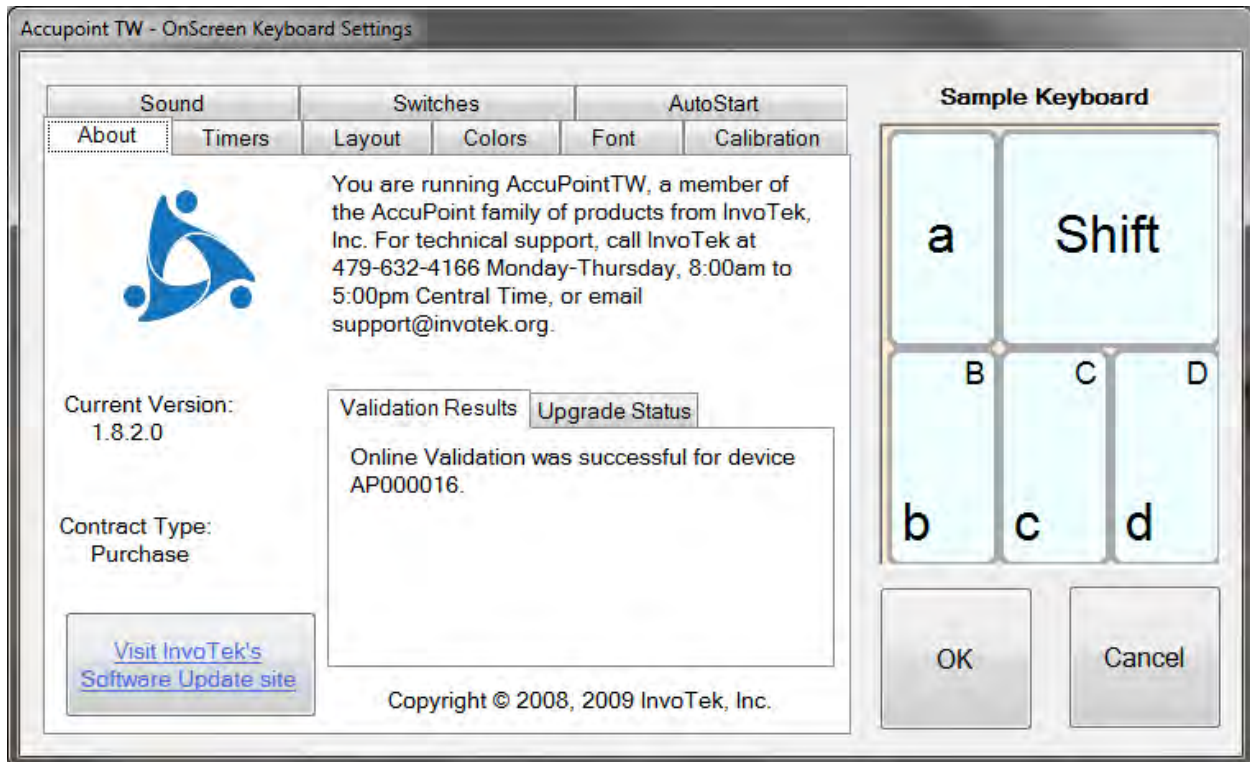
Selecting the Filter menu item allows you to increase and decrease the amount of jitter filtering that AccuPointTW applies to mouse cursor movements. The amount of filtering being applied is indicated by a single digit 0-9 between the “More” and “Less” buttons. Increasing this filter value applies more filtering, and decreasing it applies less filtering. People with very good fine motor control of their head movements should use small filtering values, while people with less precise head control or with tremors should use larger filtering values. Settings of 0-2 work well for people with typical head control. Higher settings are designed to help people that have involuntary head movements that interfere with head pointing. Experiment with several values to determine which works best for you.



Onscreen Keyboard

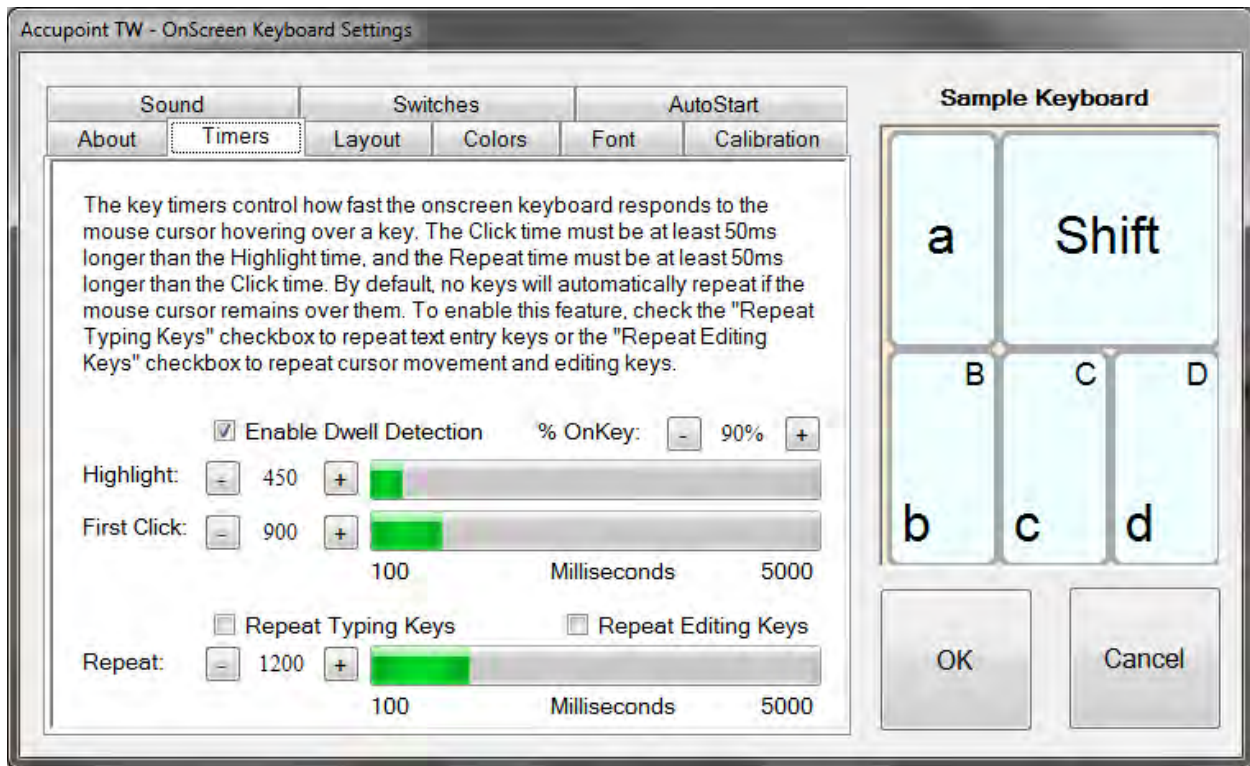
Selecting the Onscreen Keyboard menu item lets you configure a wide variety of options relating to the onscreen keyboard. Click on the tabs at the top of the dialog box to choose a category of settings to adjust.

About



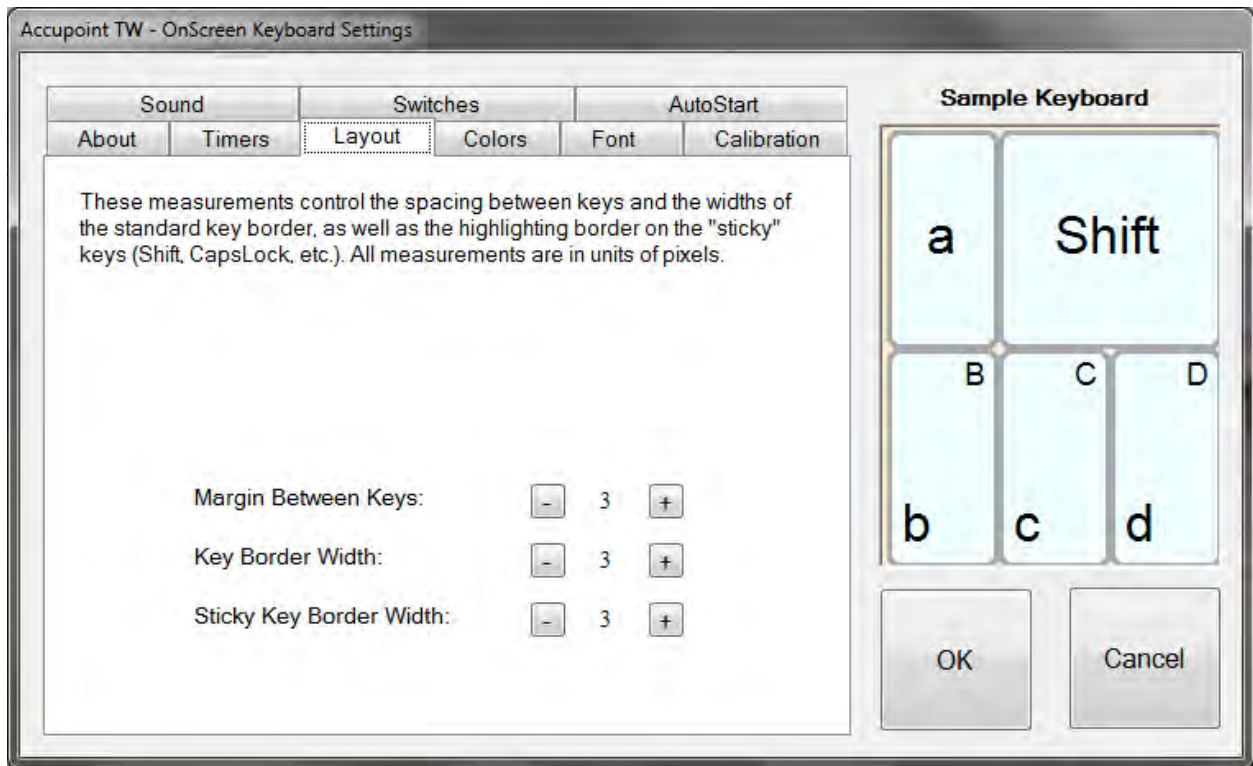
The About tab provides information about the Validation Results for your AccuPoint device and Upgrade Status for AccuPointTW. Each time you run AccuPointTW, it will attempt to contact the InvoTek website to validate your AccuPoint hardware and to check for upgrades to AccuPointTW. The results of both these processes will be available to you on this tab. In addition, the version of AccuPointTW that you are currently using will be displayed on the left, and the method you used to acquire the AccuPoint system will be noted below the version number. These are for information only. Finally, the button in the lower left corner of the tab will open the default web browser to the InvoTek Software Update site for you to download the latest update to AccuPointTW.

Timers



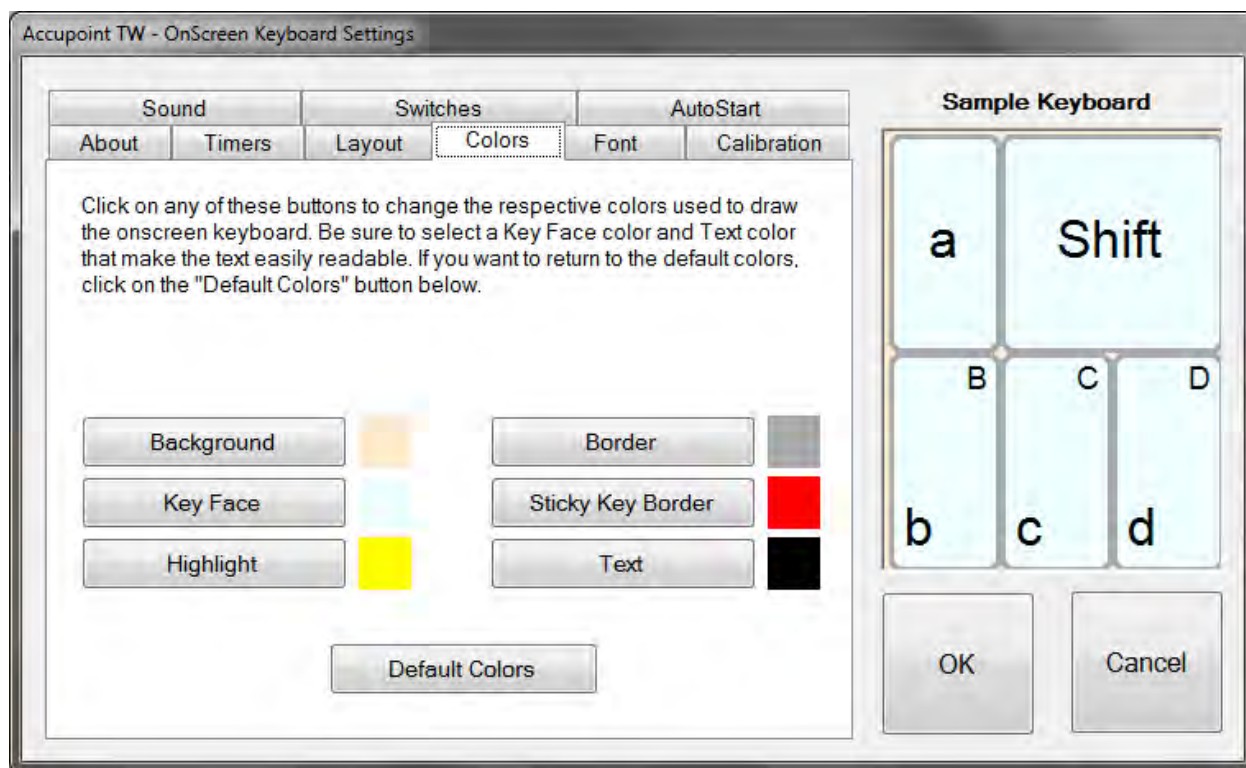
These settings control how long AccuPointTW waits to declare the mouse pointer to be still or nearly still over a key. The Highlight value determines how long AccuPointTW waits to highlight a key, and the First Click value determines how long AccuPointTW waits to initiate a "click" on the highlighted key. Note that the Click time must be at least 50ms longer than the Highlight time, and the Repeat time must be at least 50ms longer than the Click time. The "% OnKey" value allows for the user to "accidentally" slide the mouse cursor off a key and return without penalizing the user by making her wait longer for a click. Lower the value in this field if you are having trouble holding the mouse pointer within the boundaries of a single key.

Layout



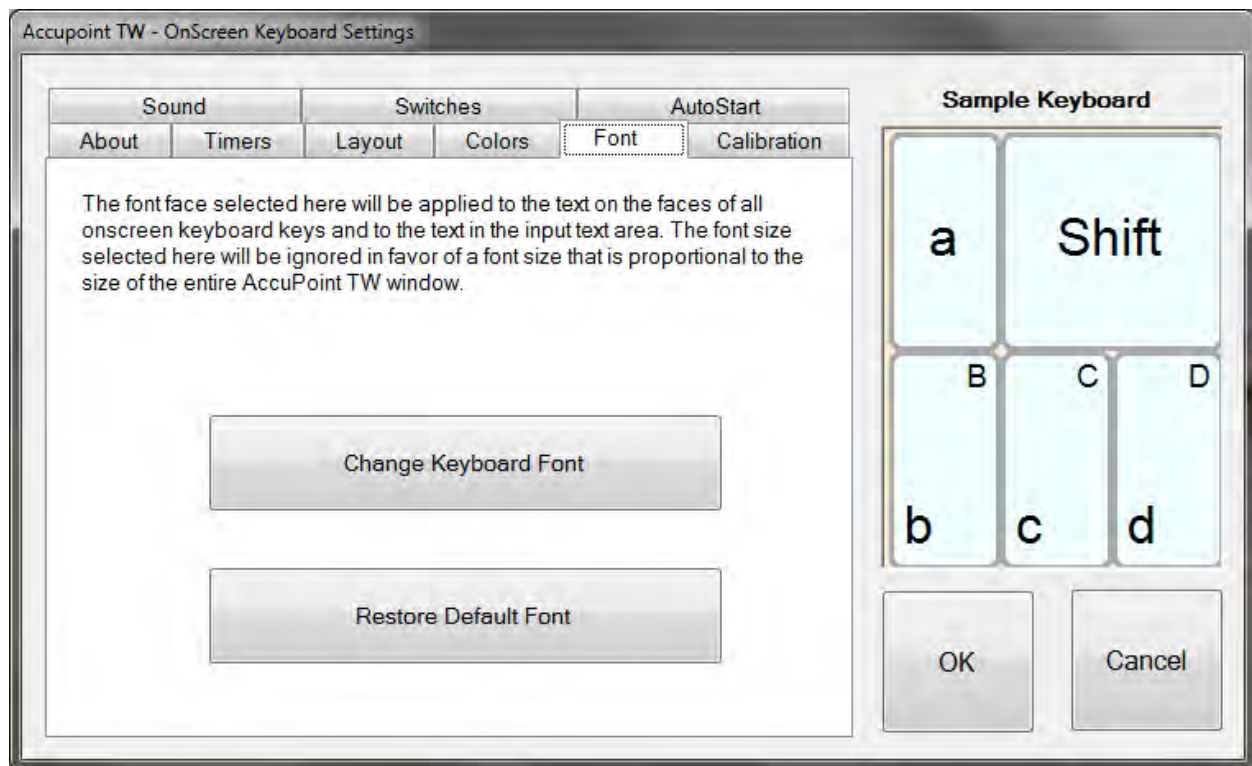
These three fields determine the spacing between keys, width of each key's normal border, and width of the "sticky" keys' (Shift, AllCaps, and Rest) borders. Each number is a measurement in pixels. One thing that some users do is to increase the Margin Between Keys to provide a safe resting space between keys while finding the next key to click.

Colors



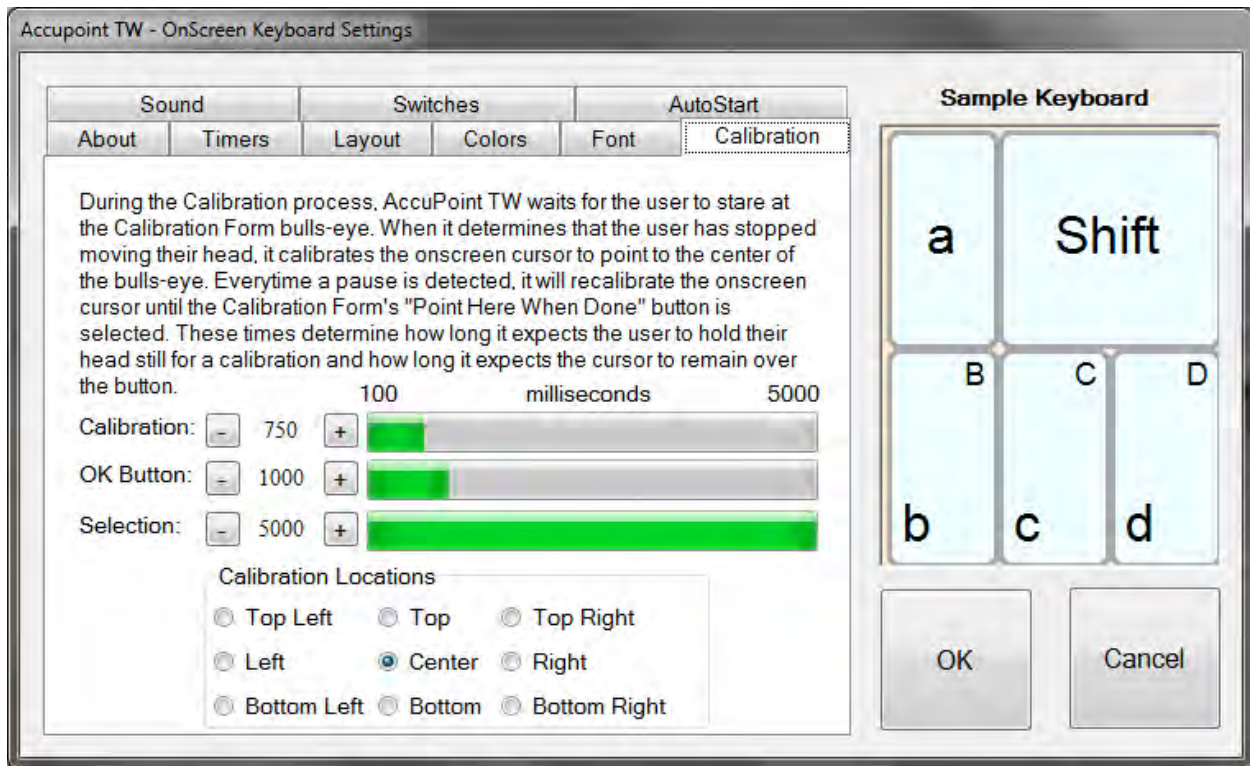
These six color settings determine how the onscreen keyboard looks, but not how it operates. Pick colors that provide contrast between adjacent keyboard components and are pleasing to look at.

Font



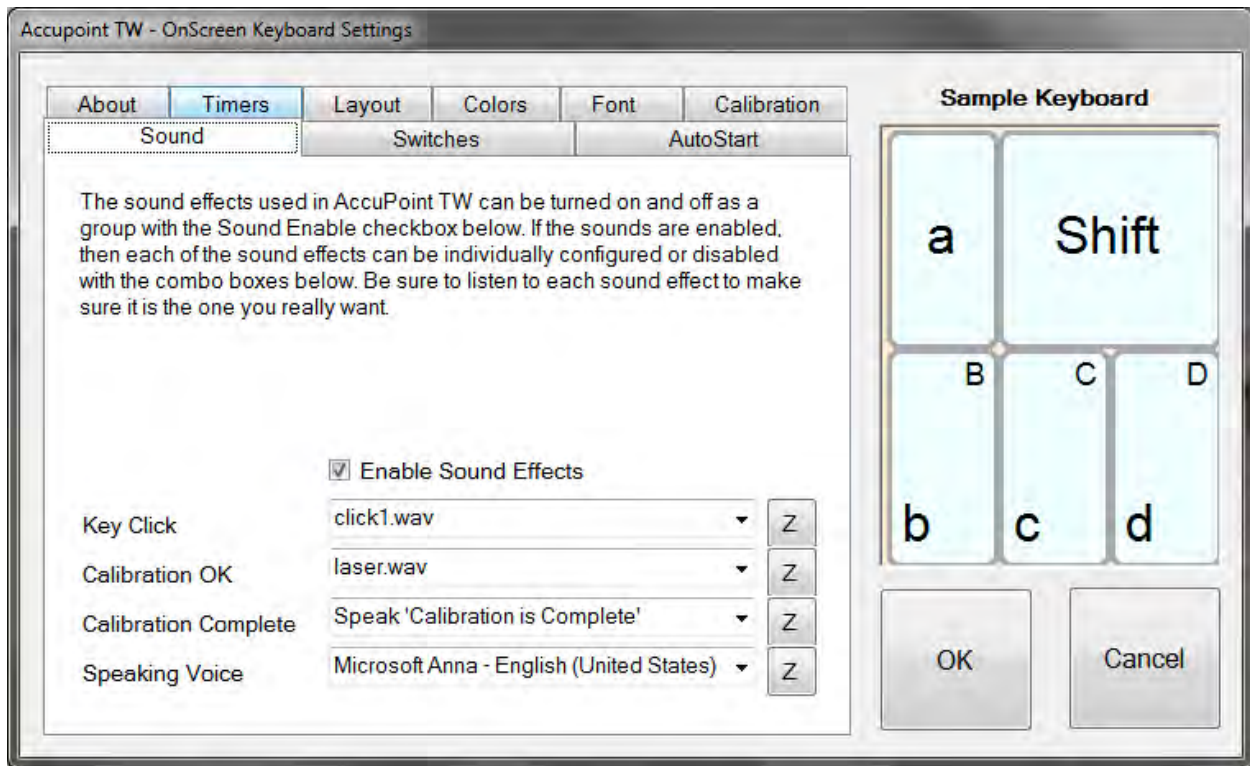
This tab just allows you to change the font used to display key labels and to display text in the text entry area.

Calibration



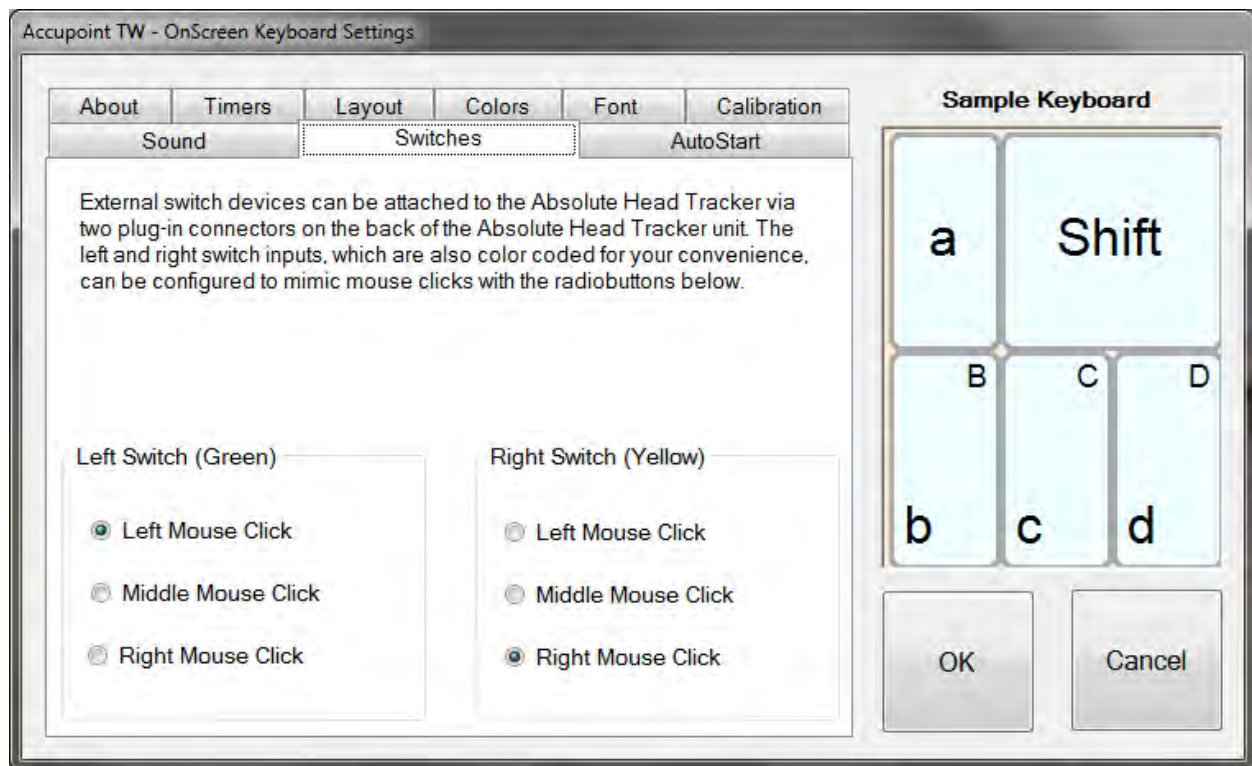
These two settings determine how long AccuPointTW waits to declare the calibration process to be complete. The Calibration value sets how long AccuPointTW requires the mouse pointer to be still or nearly still, and the Button Dwell value sets how long AccuPointTW requires the mouse pointer to be over the OK button on the Calibration Form before declaring the calibration process to be complete and closing the Calibration Form. The Calibrate Time setting sets how long a user must stay still over the target to finish the calibration instead of moving the mouse pointer to the OK button. The Calibration Location setting sets where the calibration form will be displayed on your screen. Normally, this location will be center but can be changed to make it easier for you to calibration in certain situations.

Sound



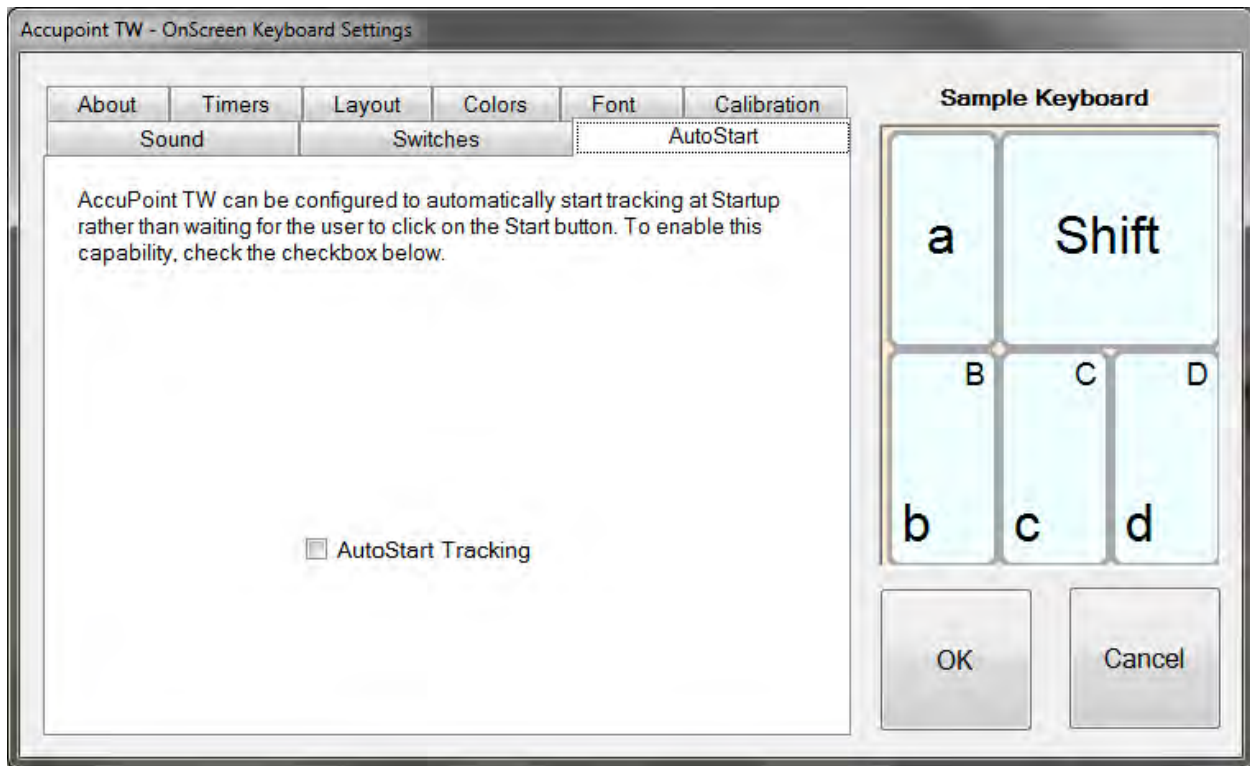
These fields determine whether AccuPointTW's sound effects are enabled or not, and if enabled, determine what sounds to make with four different events. The Key Click sound will be played every time a key on the onscreen keyboard (except Setup) is clicked. The Calibration OK sound is played when the calibration process calculates new alignment values for the mouse pointer, and the Calibration Complete sound is played when the Calibration Form's OK button is clicked. The Speaking Voice selects which of the available voices are used to read the text entry area when the Speak key is clicked and when any phrase on the Phrases page of the keyboard is clicked.

Switches



If external switches are connected to the AccuPoint hardware, this tab determines how the activation of those external switches is interpreted by AccuPointTW. Either external switch (left or right) can be configured to perform as a normal mouse's left click, middle click, or right click. The color identifiers in this tab match colored stickers on the switch inputs to the AccuPoint hardware.

AutoStart



If you would like for AccuPointTW to automatically enter its setup process when the program loads, check the “AutoStart Tracking” checkbox on this page.

What to do if the system doesn't work right

If the onscreen pointer quits moving or jumps erratically

1. Watch the Camera View window in the top left corner of the screen – if you cannot see a red rectangle containing three red dots and a blue rectangle containing three blue dots, the AccuPointTW system cannot see the dot cluster. Adjust the position of the AccuPoint hardware so that you are within the tracking area, or move so that AccuPointTW can see you.
2. AccuPointTW is very tolerant of complex lighting environments, but it is still possible that it can get confused. If you see more than three dots of either color in the Camera View windows, then the AccuPointTW system is seeing extra reflections. This can happen if one of the cameras is looking out of a window, or with some eyeglasses. Try removing reflective items from the area around your head and turning the AccuPoint hardware so that it isn't pointing at a window.
3. Occasionally, the dot cluster that you wear on your head will wear or in some way lose its reflective properties. When this happens, AccuPointTW will not be able to see the dots consistently, and the cursor will jump erratically. The only solution is to use a different dot cluster.
4. If you can still control the mouse pointer with AccuPointTW, click on ReCal to repeat the calibration and alignment process. If you have lost control of the mouse pointer with AccuPointTW, you'll have to get help to click on the "Stop Tracking" button using a standard mouse and then click on the "Setup" button to go through the calibration and alignment process again.

Error Messages

Internal Error

1. Make sure the AccuPoint hardware is connected to a working USB port on your computer and that the USB drivers for AccuPointTW have been installed. (See installation procedures if you are unsure whether the USB drivers were installed.)
2. Close and restart the AccuPointTW software.
3. If the problem persists, please call InvoTek at 479-632-4166.